

REMARKS

This application has been reviewed in light of the Office Action dated May 16, 2006. Claims 1-7, 10-17, 26 and 27 are presented for examination. Claims 1, 11, 12, 17 and 26, the independent claims, and Claim 13, have been amended to define still more clearly more clearly what Applicants regard as their invention. Claim 28 has been canceled without prejudice or disclaimer of subject matter, and will not be mentioned further.

Favorable reconsideration is requested.

In the Office Action, Claims 1-7, 10-17, 26 and 27 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,157,749 (Miyake).

Independent Claim 1 is directed to an image processing apparatus that comprises generation means for generating a bitmap image on the basis of inputted object data, and hold means for holding attribute information representing attributes of the inputted object data. The hold means hold the attribute information in units of pixels of the bitmap image generated by the generation means, and the attribute information is formed by allocating plural bits to each pixel of the bitmap image, each of the bits indicating a different type of attribute respectively. The apparatus also comprises conversion means for converting the bitmap image into data capable of being processed by an image output unit, and switch means for switching the contents of processing for each pixel based on the bits of the attribute information corresponding to that pixel. According to Claim 1, the number of bits of the attribute information used by the switch means is different in accordance with characteristics of image processing to be performed. Moreover, according to that claim, attribute information which is more frequently used is located in the lower bits, and attribute information is hierarchically retained.

Among other notable features of the apparatus of Claim 1 is that the number of bits of the attribute information used by the switch means is different in accordance with characteristics of the image processing to be performed, and, still more specifically, that the attribute information is formed by allocating plural bits to each pixel of the bitmap image with each of the plural bits indicating a different type of attribute, that attribute information which is more frequently used is located in the lower bits, and that the attribute information is hierarchically retained. Support for these features is found in the application as filed at least at page 35, line 12, through page 36, line 11.^{1/}

In an apparatus according to Claim 1, these features have the advantage that fewer bits of the attribute information are used if importance is attached to cost, for example, while on the other hand more bits are used if importance is attached to image quality. That is, when the image data is outputted by means of a relatively inexpensive printer, or otherwise is to be processed very inexpensively even at the cost of some loss of image quality, only a relatively small number of bits of the attribute information are used. For higher-quality processing, where cost is given less weight, a larger number of the bits are used, thus permitting a larger amount of attribute information to be taken into account (in that the larger number of bits can encode a larger amount of information than can be included in the smaller number). This kind of flexibility cannot be achieved using the prior-art system.

Miyake '749 relates to a system in which, in order to convert input low-resolution information into high-resolution information, image information of N x M

^{1/} It is of course to be understood that the claim scope is not limited by the details of this or any other particular embodiment that may be referred to.

pixels corresponding to the pixel of interest is formed on the basis of the information acquired from a first window, containing the pixel of interest and its neighbor pixels (e.g., a 5 x 5 pixel window as shown in Fig. 2). The information acquired from this first window includes, for example, the maximum value, minimum value, classification result based on the distribution of the pixel values, and the like (column 6, lines 1-50). The value of the pixel of interest is then converted by an adaptive low-pass filter.

A second window is formed, to refer to the converted values of the pixels which are the nearest neighbors of the pixel of interest, and both a linear and a non-linear interpolation are performed, the linear one being based on the pixel values in the first window, and the non-linear one being performed based on the representative values (maximum, etc.) obtained from the first window and on the values obtained in the linear interpolation. The result of this processing is a smooth, high-quality image of high resolution, without jaggedness or other defects of the types often resulting from the processing of a low-resolution image.

Nonetheless, even if *Miyake '749* is deemed to teach determining and classifying an attribute of an image in units of pixels, and generating an N x M pixel window containing that pixel, nothing in that patent is believed to teach or suggest how to hold the attribute. That is, Applicants strongly believe that *Miyake '749* does not teach or suggest holding attribute information formed by allocating plural bits to each pixel of a bitmap image with each of the plural bits indicating a different type of attribute. If Applicants are correct in their belief, then *Miyake '749* does not meet the terms of Claim 1, and in particular cannot teach or suggest the above characteristics of that claim that the number of bits used for switching a content of image processing, from among the plural

bits of the attribute information, is different in accordance with characteristics of the image processing to be performed, or that attribute information which is more frequently used is located in the lower bits, or that attribute information is hierarchically retained. For all these reasons, Applicants submit that Claim 1 is allowable over *Miyake '749*.

Independent Claim 12 is directed to an image processing system recited as having each of the features recited in Claim 1. Claim 26 is directed to an image processing apparatus similar to that of Claim 1, but recited in non-means-plus-function format. Claims 11 and 17 are computer memory medium and method claims, respectively, corresponding to apparatus Claim 1. All these claims are believed to be patentable for at least the same reasons as discussed above in connection with Claim 1.

A review of the other art of record has failed to reveal anything which, in Applicants' opinion, would remedy the deficiencies of the art discussed above, as a reference against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and allowance of the present application.

Applicants' undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

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